

Haines Weather/Data Summary For Debris Flows, Landslides, Flooding Event

December 1-8, 2020

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Event overview:

A very strong atmospheric river (AR) impacted Southeast Alaska from December 1-2 with a series of other strong and moist weather fronts through December 8th. The AR produced historic extreme precipitation in particular over the far northern inner channels including Haines Alaska. The rainfall and snowmelt caused massive road infrastructure damage from runoff coming from Ripinsky Ridge that overwhelmed culverts and flooded areas away from steep terrain including portions of the Haines airport. There were also multiple debris flows along the Haines Highway, Lutak Rd, Mud Bay Rd, Mosquito Lake area and a deadly landslide along Beach Rd where 2 people lost their lives. A large avalanche came down into Chilkat Lake that damaged a few homes. Residents were evacuated from numerous locations across the Haines area. 8 homes were destroyed, and at least 21 will be inaccessible in the long term.



Weather and hydrologic details (all data statistics are provisional):

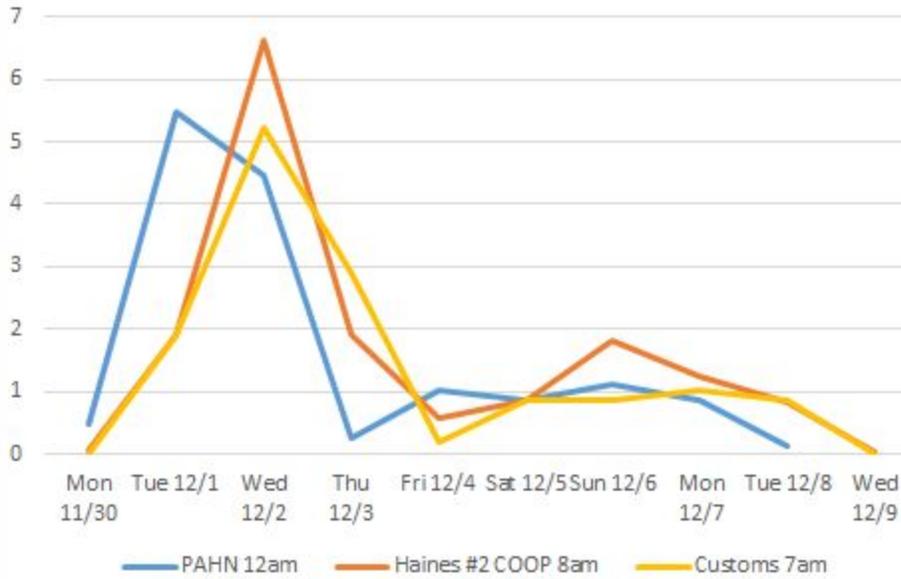
On December 1, precipitation moved into the region with snow level slowly rising through the day with some minor accumulations at sea level but much more at higher elevations (34-59") and along the Haines Highway(17.8"). The 24hr precipitation amount of 5.49" on

December 1 from the Haines Airport broke the all time daily record from 1946 and was a 25 to 50 year return period for rainfall frequency. Looking at a rolling 24hr rainfall total from December 1 through the 2 at 12pm the max was 7.12" with a 100-150 year return interval (RI). The downtown Haines COOP station reported 6.62" which broke it's all time daily precipitation record from 2005 on December 2 (taken at 8am). The Haines40NW COOP reported 5.23" and broke it's all time daily precipitation record from 1999 and was a 25 year RI. Moving into the early hours of December 2, the heavy rain continued as another impulse of heavy precipitation moved over the area and the snow level rose above 2500ft. The rising snow level began to melt the fresh snowfall at high elevation to produce significant amount of runoff. 2 day precipitation amounts from the downtown Haines COOP (8.54"), Haines Airport (10.26" a 500 year RI) and the Haines40NW COOP (8.12" a 50-100 year RI) were all time 48 hours precipitation records. There was significant loss of the snowpack at high elevations that increased the runoff from Rapinsky Ridge on top of the precipitation that fell. Prior to the warm up about 59" of snow accumulated with a loss of around 30" as seen by the Rapinsky Ridge weather station. There was similar, not as much, snowfall accumulations (27") and loss in the mountains along the Haines Highway as seen by the NRCS SNOTEL site at Flower Mountain. The amount of snow water equivalent (SWE) within the snowpack at Flower Mountain increased by more than 5" in 48hrs (Dec1-3) and 9" in 7 days (Dec1-8).

There was a little break in the precipitation on December 3rd but moderate to heavy rain moved back into the area from December 4th-7th as a series of weather fronts moved through the region. Daily precipitation totals ranged from $\frac{3}{4}$ " to also most 2". During this time frame there were episodes of fresh snow from sea level, along the Haines Highway to the mountain tops. The most snowfall came from the night of December 5 into the 6th where 6-8" fell with some moderate freezing rain around downtown Haines. Rapinsky Ridge reported near 19". The snow level rose again through December 6th and moderate rain fell on the snowpack. The combination of snowmelt and moderate precipitation increased the runoff from Rapinsky Ridge but no impacts were observed. The exception was, high water table pressure and reports of house movements in the area of the 2012 slump event. The persistent precipitation and snowmelt kept the soils very wet and continued to produce runoff through December 8. The longer duration (4-7 day) precipitation frequencies remained in the 50-200 year RI range to keep the risk of life and property elevated.

Supporting Weather and Hydrologic data, graphs and tables (all data statistics are provisional): sources, XMACIS2, NRCS, MesoWest, Haines Avalanche Center, NOAA Atlas 14 vol.7

Haines Area Precip



NOAA Atlas 14 Precipitation Frequency Values

PDS-based precipitation frequency estimates with 90% confidence intervals (in inches)¹

Average recurrence intervals (years)

Duration	1	2	5	10	25	50	100	200	500	1000
5-min	0.104 (0.087-0.127)	0.130 (0.107-0.161)	0.167 (0.135-0.212)	0.197 (0.156-0.254)	0.239 (0.185-0.316)	0.272 (0.206-0.366)	0.304 (0.226-0.417)	0.343 (0.251-0.479)	0.395 (0.282-0.564)	0.434 (0.305-0.631)
10-min	0.140 (0.117-0.171)	0.175 (0.144-0.217)	0.224 (0.160-0.294)	0.265 (0.210-0.342)	0.321 (0.248-0.426)	0.365 (0.277-0.491)	0.408 (0.304-0.559)	0.461 (0.337-0.642)	0.530 (0.379-0.757)	0.583 (0.409-0.847)
15-min	0.164 (0.137-0.200)	0.205 (0.168-0.254)	0.262 (0.211-0.332)	0.310 (0.245-0.400)	0.376 (0.290-0.497)	0.427 (0.324-0.575)	0.477 (0.355-0.654)	0.539 (0.394-0.752)	0.620 (0.443-0.896)	0.682 (0.479-0.991)
30-min	0.218 (0.182-0.266)	0.272 (0.224-0.337)	0.348 (0.280-0.441)	0.412 (0.326-0.531)	0.499 (0.385-0.660)	0.566 (0.429-0.762)	0.634 (0.472-0.869)	0.715 (0.523-0.966)	0.823 (0.588-1.18)	0.905 (0.635-1.32)
60-min	0.298 (0.249-0.364)	0.372 (0.306-0.461)	0.472 (0.384-0.584)	0.564 (0.446-0.727)	0.683 (0.527-0.903)	0.776 (0.588-1.05)	0.888 (0.646-1.19)	0.980 (0.717-1.37)	1.13 (0.806-1.61)	1.24 (0.871-1.80)
2-hr	0.503 (0.420-0.615)	0.627 (0.516-0.777)	0.804 (0.648-1.02)	0.951 (0.751-1.23)	1.15 (0.880-1.52)	1.31 (0.992-1.78)	1.46 (1.09-2.01)	1.65 (1.21-2.31)	1.90 (1.36-2.72)	2.09 (1.47-3.04)
3-hr	0.705 (0.589-0.881)	0.879 (0.724-1.09)	1.13 (0.908-1.43)	1.34 (0.9-1.72)	1.62 (1.25-2.14)	1.84 (1.39-2.47)	2.05 (1.53-2.81)	2.32 (1.70-3.24)	2.67 (1.91-3.81)	2.93 (2.06-4.28)
6-hr	1.18 (0.986-1.44)	1.47 (1.21-1.82)	1.89 (1.52-2.39)	2.23 (1.77-2.88)	2.71 (2.09-3.58)	3.07 (2.33-4.14)	3.44 (2.56-4.71)	3.88 (2.84-5.42)	4.47 (3.19-6.38)	4.91 (3.45-7.14)
12-hr	1.69 (1.41-2.08)	2.11 (1.73-2.61)	2.70 (2.17-3.42)	3.18 (2.52-4.10)	3.85 (2.99-5.09)	4.39 (3.32-5.90)	4.93 (3.67-6.76)	5.57 (4.09-7.76)	6.42 (4.69-9.17)	7.06 (4.96-10.3)
24-hr	2.30 (2.11-2.53)	2.87 (2.60-3.20)	3.67 (3.25-4.18)	4.31 (3.76-5.00)	5.21 (4.44-6.19)	5.94 (4.97-7.18)	6.70 (5.51-8.24)	7.57 (6.1-9.46)	8.71 (6.88-11.1)	9.57 (7.43-12.4)
2-day	3.12 (2.86-3.43)	3.87 (3.51-4.32)	4.92 (4.36-5.60)	5.74 (5.00-6.66)	6.89 (5.86-8.17)	7.79 (6.52-9.41)	8.73 (7.18-10.7)	9.76 (7.88-12.2)	11.1 (8.79-14.2)	12.2 (9.44-15.8)
3-day	3.71 (3.41-4.08)	4.60 (4.16-5.13)	5.81 (5.19-6.62)	6.76 (5.89-7.84)	8.06 (6.89-9.56)	9.07 (7.59-11.0)	10.1 (8.31-12.4)	11.2 (9.17-14.0)	12.7 (10.0-16.3)	13.8 (10.7-18.0)
4-day	4.20 (3.85-4.62)	5.19 (4.70-5.79)	6.54 (5.80-7.45)	7.58 (6.61-8.79)	9.00 (7.66-10.7)	10.1 (8.44-12.2)	11.2 (9.22-13.8)	12.4 (10.0-15.5)	14.0 (11.0-17.9)	15.1 (11.8-19.7)
7-day	5.40 (4.95-5.94)	6.66 (6.03-7.42)	8.34 (7.39-9.50)	9.62 (8.38-11.2)	11.3 (9.64-13.4)	12.6 (10.6-15.3)	13.9 (11.5-17.1)	15.3 (12.3-19.1)	17.0 (13.5-21.8)	18.4 (14.3-23.9)
10-day	6.33 (5.81-6.96)	7.79 (7.05-8.69)	9.72 (8.62-11.1)	11.2 (9.74-13.0)	13.1 (11.1-16.5)	14.6 (12.2-17.6)	16.0 (13.1-19.7)	17.4 (14.1-21.8)	19.4 (15.3-24.8)	20.8 (16.2-27.1)
30-day	9.17 (8.42-10.1)	11.2 (10.2-12.5)	13.9 (12.3-15.8)	15.9 (13.8-18.4)	18.5 (15.7-21.9)	20.4 (17.0-24.6)	22.2 (18.3-27.3)	24.0 (19.4-30.1)	26.4 (20.9-33.8)	28.3 (21.9-36.8)
30-day	11.8 (10.8-13.0)	14.4 (13.1-16.1)	17.8 (15.8-20.3)	20.3 (17.7-23.5)	23.4 (19.9-27.8)	25.8 (21.5-31.1)	28.0 (23.0-34.4)	30.2 (24.4-37.7)	33.0 (26.1-42.2)	35.2 (27.3-45.8)
45-day	15.2 (13.9-16.7)	18.4 (16.7-20.6)	22.6 (20.1-25.8)	25.7 (22.4-29.8)	29.6 (25.2-35.1)	32.5 (27.1-39.2)	35.2 (28.9-43.3)	37.8 (30.5-47.3)	41.2 (32.6-52.7)	43.8 (34.0-57.0)
60-day	17.4 (15.9-19.1)	21.0 (19.1-23.5)	25.7 (22.8-29.3)	29.1 (25.4-33.8)	33.5 (29.3-39.7)	36.6 (30.6-44.3)	39.7 (32.6-48.8)	42.6 (34.4-53.3)	46.4 (36.7-59.4)	49.3 (38.3-64.1)

¹Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

Haines Airport Precipitation Amounts & Respective Return Intervals (RI) (on an hourly rolling barrel)

- 1-hr: 0.47"/5 year RI
- 2-hr: 0.9"/10 year RI
- 3-hr: 1.32"/10 year RI
- 6-hr: 2.31"/~15 year RI
- 12-hr: 4.29"/50 year RI
- 24-hr: 7.18"/150 year RI
- 2-Day: 10.49"/200-500 year RI
- 3-Day: 10.98"/~200 year RI
- 4-Day: 12.01"/~150 year RI
- 7-Day: 14.85"/~150 year RI

NOAA Atlas 14 Precipitation Frequency Values

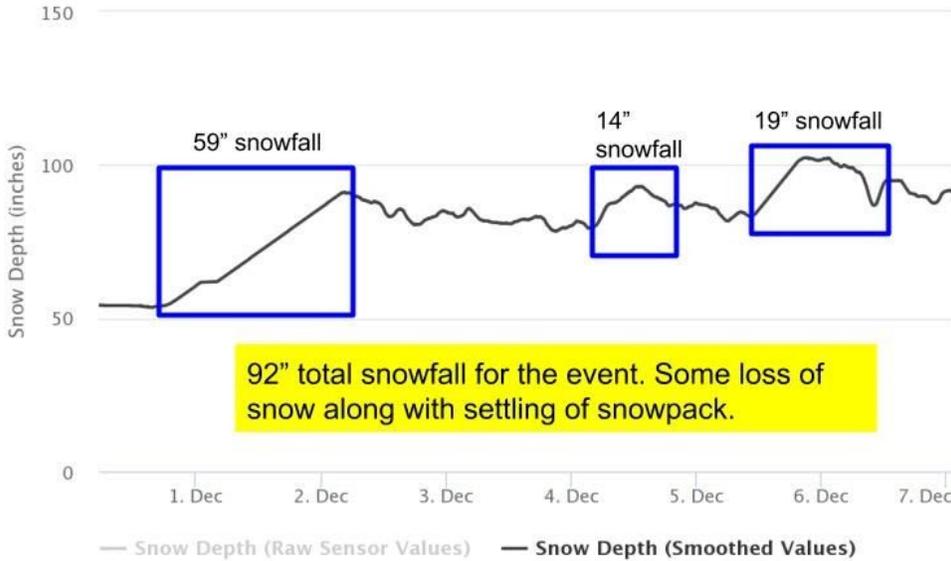
24hr observations taken 7am daily from Haines 40NW (border customs office)

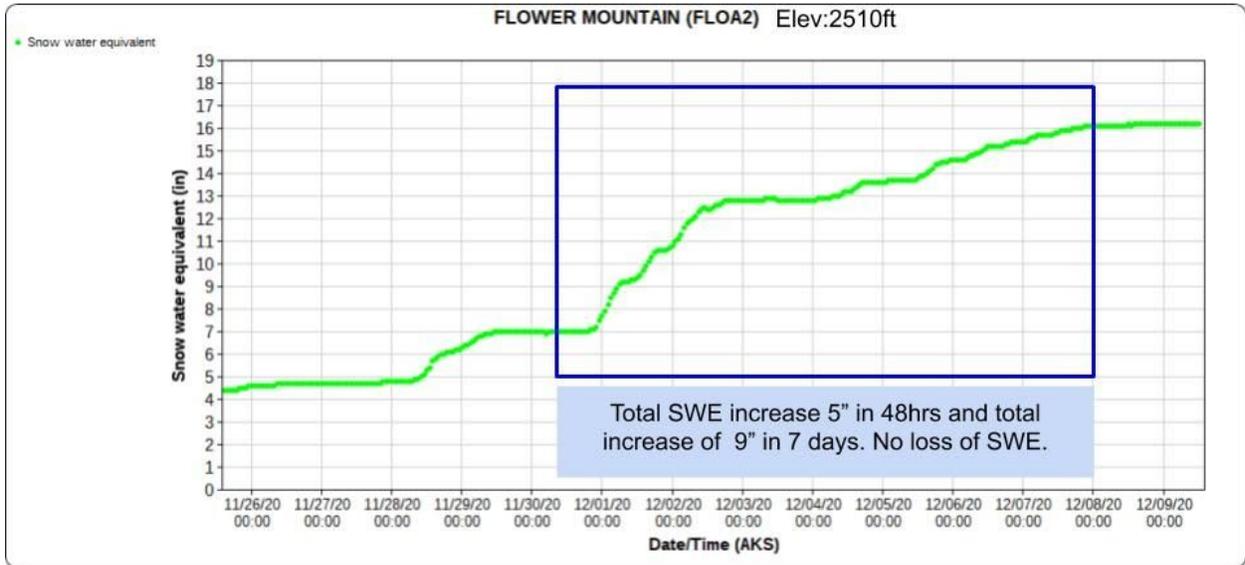
Duration	PDS-based precipitation frequency estimates with 90% confidence intervals (in inches) ¹									
	Average recurrence intervals(years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.119 (0.091-0.156)	0.147 (0.111-0.197)	0.188 (0.139-0.257)	0.221 (0.161-0.307)	0.267 (0.190-0.379)	0.303 (0.212-0.438)	0.338 (0.233-0.496)	0.389 (0.258-0.567)	0.436 (0.290-0.664)	0.478 (0.313-0.739)
10-min	0.159 (0.121-0.211)	0.199 (0.149-0.266)	0.252 (0.187-0.345)	0.297 (0.216-0.413)	0.359 (0.256-0.510)	0.407 (0.285-0.588)	0.454 (0.313-0.666)	0.511 (0.347-0.762)	0.585 (0.389-0.891)	0.642 (0.420-0.993)
15-min	0.186 (0.142-0.246)	0.232 (0.175-0.311)	0.295 (0.218-0.404)	0.348 (0.253-0.484)	0.420 (0.299-0.597)	0.476 (0.334-0.687)	0.532 (0.367-0.781)	0.598 (0.406-0.892)	0.685 (0.465-1.04)	0.751 (0.492-1.16)
30-min	0.247 (0.189-0.327)	0.307 (0.232-0.412)	0.392 (0.290-0.536)	0.461 (0.336-0.641)	0.558 (0.396-0.793)	0.632 (0.443-0.913)	0.706 (0.487-1.04)	0.794 (0.539-1.18)	0.909 (0.604-1.38)	0.996 (0.652-1.54)
60-min	0.339 (0.259-0.449)	0.421 (0.318-0.565)	0.537 (0.397-0.735)	0.632 (0.460-0.879)	0.764 (0.544-1.09)	0.866 (0.607-1.25)	0.967 (0.667-1.42)	1.09 (0.738-1.62)	1.25 (0.826-1.90)	1.37 (0.894-2.11)
2-hr	0.516 (0.394-0.684)	0.642 (0.485-0.861)	0.817 (0.605-1.12)	0.963 (0.701-1.34)	1.16 (0.830-1.65)	1.32 (0.924-1.90)	1.47 (1.02-2.16)	1.65 (1.12-2.47)	1.90 (1.26-2.89)	2.08 (1.36-3.21)
3-hr	0.691 (0.528-0.916)	0.859 (0.648-1.15)	1.09 (0.810-1.50)	1.29 (0.939-1.79)	1.56 (1.11-2.22)	1.77 (1.24-2.55)	1.97 (1.36-2.89)	2.22 (1.50-3.30)	2.54 (1.69-3.87)	2.78 (1.82-4.30)
6-hr	1.12 (0.857-1.49)	1.40 (1.05-1.87)	1.78 (1.32-2.43)	2.09 (1.53-2.91)	2.53 (1.80-3.59)	2.87 (2.01-4.14)	3.20 (2.21-4.70)	3.60 (2.44-5.37)	4.12 (2.74-6.28)	4.52 (2.96-6.99)
12-hr	1.68 (1.28-2.22)	2.09 (1.58-2.80)	2.66 (1.97-3.84)	3.13 (2.28-4.34)	3.77 (2.69-5.36)	4.28 (3.00-6.18)	4.80 (3.31-7.05)	5.40 (3.67-8.05)	6.19 (4.12-8.43)	6.79 (4.45-10.5)
24-hr	2.38 (2.12-2.71)	2.96 (2.60-3.42)	3.78 (3.24-4.44)	4.42 (3.74-5.29)	5.33 (4.40-6.52)	6.05 (4.91-7.53)	6.80 (5.43-8.61)	7.64 (6.00-9.84)	8.76 (6.72-11.5)	9.60 (7.25-12.8)
2-day	3.10 (2.75-3.52)	3.84 (3.37-4.43)	4.87 (4.18-5.73)	5.68 (4.80-6.80)	6.81 (5.62-8.33)	7.70 (6.25-9.58)	8.62 (6.88-10.9)	9.63 (7.56-12.4)	11.0 (8.42-14.4)	12.0 (9.05-16.0)
3-day	3.56 (3.17-4.05)	4.41 (3.87-5.08)	5.58 (4.79-6.56)	6.50 (5.49-7.77)	7.76 (6.40-9.49)	8.75 (7.10-10.9)	9.77 (7.80-12.4)	10.9 (8.54-14.0)	12.3 (9.47-16.2)	13.4 (10.2-18.0)
4-day	3.96 (3.51-4.50)	4.89 (4.29-5.64)	6.17 (5.30-7.26)	7.17 (6.06-8.57)	8.53 (7.04-10.4)	9.59 (7.79-11.9)	10.7 (8.52-13.5)	11.8 (9.30-15.3)	13.4 (10.3-17.6)	14.5 (11.0-19.5)
7-day	5.04 (4.48-5.74)	6.23 (5.46-7.18)	7.81 (6.71-9.19)	9.01 (7.61-10.8)	10.6 (8.76-13.0)	11.8 (9.61-14.7)	13.1 (10.4-16.5)	14.3 (11.2-18.4)	16.0 (12.3-21.0)	17.2 (13.0-23.0)
10-day	5.92 (5.26-6.73)	7.30 (6.40-8.41)	9.11 (7.82-10.7)	10.5 (8.84-12.5)	12.2 (10.1-15.0)	13.6 (11.0-18.9)	14.9 (11.9-18.8)	16.2 (12.7-20.8)	17.9 (13.8-23.6)	19.2 (14.5-25.7)
20-day	8.57 (7.62-9.75)	10.5 (9.23-12.1)	13.0 (11.2-15.3)	14.8 (12.5-17.7)	17.2 (14.2-21.0)	18.8 (15.3-23.5)	20.5 (16.3-25.9)	22.0 (17.3-28.3)	24.0 (18.4-31.6)	25.5 (19.3-34.1)
30-day	11.1 (9.82-12.6)	13.5 (11.9-15.6)	16.7 (14.3-19.6)	18.9 (16.0-22.6)	21.7 (17.9-26.6)	23.7 (19.3-29.6)	25.7 (20.5-32.5)	27.4 (21.5-35.3)	29.7 (22.8-39.0)	31.4 (23.7-42.0)
45-day	12.2 (12.6-16.2)	17.4 (15.2-20.0)	21.3 (18.3-25.0)	24.0 (20.3-29.7)	27.5 (22.7-33.6)	29.9 (24.3-37.2)	32.2 (25.7-40.7)	34.2 (26.8-44.0)	36.9 (28.3-48.5)	38.9 (29.4-52.0)
60-day	16.4 (14.6-18.7)	19.9 (17.5-23.0)	24.3 (20.9-29.6)	27.4 (23.1-32.7)	31.2 (25.7-38.1)	33.9 (27.5-42.2)	36.4 (29.1-46.1)	38.7 (30.4-49.8)	41.7 (32.0-54.9)	44.0 (33.2-58.8)

Date	Precipitation
2020-12-01	1.91
2020-12-02	5.23
2020-12-03	2.89
2020-12-04	0.20
2020-12-05	0.86
2020-12-06	0.86
2020-12-07	1.03

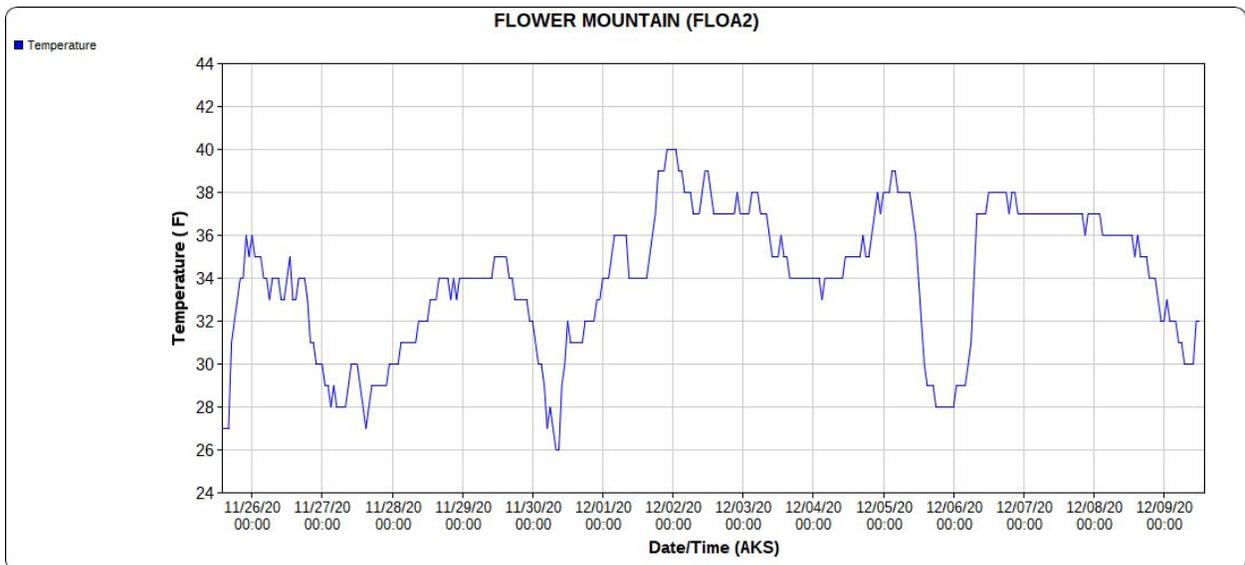
Respective Return Intervals (RI)
 1day total=5.23" (25 year RI)
 2day total=8.12" (50-100 year RI)
 3day total=10.03" (100-200 year RI)
 7day total=12.98" (50-100 year RI)

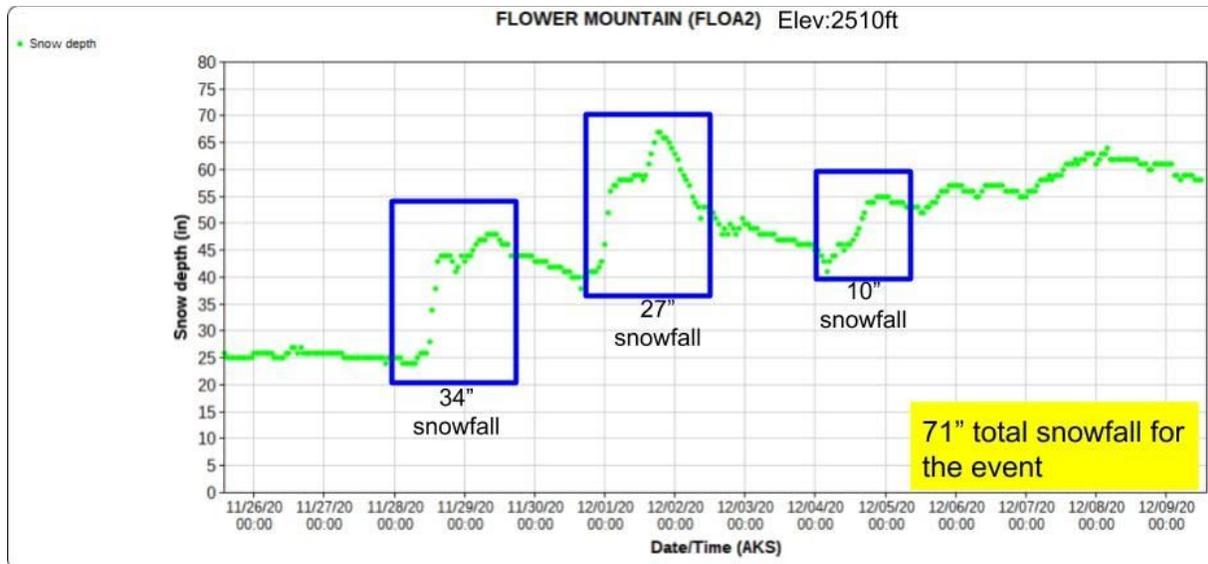
Ripinsky Ridge Weather Station Snow Depth 7 Day Plot Elev:2560ft





Flower Mountain SNOTEL(elevation 2510ft)





Maximum 1-Day Total Precipitation
for HAINES #2, AK (Downtown Haines)

1	6.62	2020-12-02
2	3.92	2005-11-23
3	3.31	2011-12-01
4	3.17	2003-12-22
5	3.05	2017-02-12
6	3.01	2002-11-27
-	3.01	2001-09-13
8	2.97	2019-03-18
-	2.97	2014-10-10
10	2.89	2001-02-27

Period of record: 2000-05-01 to 2020-12-06

Maximum 2-Day Total Precipitation
for HAINES #2, AK (Downtown Haines)

1	8.54	2020-12-03	0
2	8.53	2020-12-02	0
3	6.39	2005-11-23	0
4	5.23	2005-11-24	0
5	4.90	2015-01-22	0
6	4.64	2002-11-27	0
7	4.43	2001-02-28	0
8	4.21	2003-12-23	0
9	4.02	2001-09-14	0
10	3.95	2017-02-13	0

Period of record: 2000-05-01 to 2020-12-06

Maximum 1-Day Total Precipitation
for HAINES AIRPORT, AK

1	5.49	2020-12-01 (25-50 year turn period)
2	5.39	1946-10-10
3	4.87	1943-10-07
4	4.80	1988-10-13
5	4.77	2020-12-02
6	4.26	1944-10-09
7	3.94	1952-10-18
8	3.91	1990-02-19
9	3.89	1911-10-11
10	3.68	1938-12-11

Period of record: 1911-09-14 to 2020-12-06

Maximum 2-Day Total Precipitation
for HAINES AIRPORT, AK

1	10.26	2020-12-02 (200-500 year return period)
2	7.18	1944-10-10
3	6.80	1988-10-14
4	6.61	1952-10-19
5	6.58	1943-10-07
6	6.45	1937-10-22
7	6.05	1949-10-30
8	5.98	2020-12-01
9	5.97	2005-11-22
10	5.95	1956-03-08

Period of record: 1911-09-14 to 2020-12-06

Maximum 5-Day Total Precipitation
for HAINES AIRPORT, AK

1	12.40	2020-12-05
2	12.02	2020-12-04
3	11.86	2020-12-02
4	11.62	1949-11-02
5	11.43	1949-11-03
6	11.14	2020-12-03
7	10.25	1943-10-10
8	9.76	1943-10-09
9	9.66	2005-11-24
-	9.66	1949-11-05

Period of record: 1911-09-14 to 2020-12-06

Maximum 1-Day Total Precipitation

for HAINES 40NW, AK

1	5.23	2020-12-02 (25 year return period)
2	5.09	1999-11-01
3	4.00	2009-09-16
4	3.58	1998-10-20
5	3.49	2019-03-18
6	3.40	2003-12-22
7	3.11	2004-02-09
8	3.00	2005-11-23
9	2.96	1994-10-04
10	2.89	2020-12-03

Period of record: 1989-09-01 to 2020-12-07

Maximum 2-Day Total Precipitation

for HAINES 40NW, AK

1	8.12	2020-12-03 (50-100 year return period)
2	7.14	2020-12-02
3	5.21	1999-11-01
4	5.09	1999-11-02
5	5.06	2005-11-23
6	4.90	2009-09-17
7	4.89	2003-12-23
8	4.34	1997-12-02
9	4.00	2009-09-16
10	3.99	2019-03-18

Period of record: 1989-09-01 to 2020-12-07

24 hour Observations taken at 12am daily from Haines airport

Date	Max Temperature	Min Temperature	Avg Temperature	Precipitation
2020-12-01	46	35	40.5	5.49
2020-12-02	47	41	44.0	4.77
2020-12-03	44	37	40.5	0.26
2020-12-04	46	33	39.5	1.01
2020-12-05	46	30	38.0	0.87
2020-12-06	45	30	37.5	1.12
2020-12-07	43	40	41.5	0.87
2020-12-08	42	38	40.0	0.14

Sum			-	14.53
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Date	Max Temperature	Min Temperature	Avg Temperature	Precipitation
2020-11-01	30	20	25.0	0.36
2020-11-02	22	18	20.0	0.05
2020-11-03	21	17	19.0	0.07
2020-11-04	23	15	19.0	0.01
2020-11-05	M	M	M	M
2020-11-06	24	9	16.5	0.00
2020-11-07	25	10	17.5	0.00
2020-11-08	38	18	28.0	0.13
2020-11-09	39	35	37.0	0.01
2020-11-10	37	20	28.5	0.00
2020-11-11	39	19	29.0	0.02
2020-11-12	39	32	35.5	0.36
2020-11-13	34	31	32.5	0.03
2020-11-14	34	30	32.0	0.11
2020-11-15	33	27	30.0	0.00
2020-11-16	30	20	25.0	0.00
2020-11-17	28	17	22.5	0.00
2020-11-18	27	17	22.0	T
2020-11-19	23	19	21.0	T
2020-11-20	25	18	21.5	T
2020-11-21	32	20	26.0	0.23
2020-11-22	31	25	28.0	0.10
2020-11-23	39	25	32.0	1.32
2020-11-24	38	26	32.0	0.14
2020-11-25	39	16	27.5	0.23
2020-11-26	40	28	34.0	0.10
2020-11-27	37	27	32.0	T
2020-11-28	39	34	36.5	0.98
2020-11-29	40	35	37.5	0.13
2020-11-30	39	31	35.0	0.49

Sum	945	659	-	4.87
Average	32.6	22.7	27.7	-
Normal	34.5	26.1	30.3	5.43

24 hour Observations taken at 8am daily from Downtown Haines

Date	Max Temperature	Min Temperature	Avg Temperature	Precipitation	Snowfall	Snow Depth
2020-12-01	36	30	33.0	1.91	2.0	16
2020-12-02	43	34	38.5	6.62	0.0	11
2020-12-03	43	38	40.5	1.92	0.0	8
2020-12-04	41	32	36.5	0.57	0.6	6
2020-12-05	43	32	37.5	0.85	0.2	5
2020-12-06	36	28	32.0	1.82	8.2	12
2020-12-07	40	31	35.5	1.24	0.0	9
2020-12-08	40	37	38.5	0.83	0.0	7
2020-12-09	40	34	37.0	0.04	0.0	6

Sum			-	15.80	11.0
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Date	Max Temperature	Min Temperature	Avg Temperature	Precipitation	Snow fall	Snow Depth
2020-11-01	45	24	34.5	0.26	0.0	0
2020-11-02	27	15	21.0	1.19	16.0	16
2020-11-03	18	13	15.5	0.01	0.3	15
2020-11-04	17	13	15.0	0.25	3.7	17
2020-11-05	21	13	17.0	0.00	0.0	16
2020-11-06	20	9	14.5	0.00	0.0	15
2020-11-07	22	6	14.0	0.00	0.0	15
2020-11-08	25	6	15.5	0.00	0.0	14
2020-11-09	36	24	30.0	0.36	T	11
2020-11-10	38	28	33.0	T	0.0	11
2020-11-11	34	19	26.5	0.02	0.1	11

2020-11-12	36	27	31.5	0.18	2.1	12
2020-11-13	33	31	32.0	0.45	5.6	15
2020-11-14	33	30	31.5	0.09	2.0	16
2020-11-15	32	26	29.0	0.04	1.3	17
2020-11-16	31	25	28.0	0.00	0.0	17
2020-11-17	26	17	21.5	0.00	0.0	16
2020-11-18	28	19	23.5	0.00	0.0	16
2020-11-19	26	18	22.0	T	T	15
2020-11-20	20	16	18.0	T	0.2	15
2020-11-21	23	18	20.5	T	T	15
2020-11-22	30	21	25.5	0.46	6.5	20
2020-11-23	32	25	28.5	0.13	1.3	21
2020-11-24	35	30	32.5	1.53	8.2	24
2020-11-25	35	17	26.0	T	T	23
2020-11-26	37	18	27.5	0.40	0.5	21
2020-11-27	38	28	33.0	0.03	0.0	20
2020-11-28	35	29	32.0	0.20	0.6	20
2020-11-29	37	32	34.5	1.16	2.5	19
2020-11-30	37	30	33.5	0.07	0.0	17
Sum	907	627	-	6.83	50.9	-
Average	30.2	20.9	25.6	-	-	16.0
Normal	34.2	24.7	29.4	8.63	M	-

24hr observations taken 7am daily from Haines 40NW (border customs office)

Date	Max Temperature	Min Temperature	Avg Temperature	Precipitation	Snowfall	Snow Depth
2020-12-01	32	19	25.5	1.91	11.3	36
2020-12-02	34	31	32.5	5.23	6.5	M
2020-12-03	37	31	34.0	2.89	0.0	M
2020-12-04	37	30	33.5	0.20	2.5	M
2020-12-05	32	31	31.5	0.86	4.0	M
2020-12-06	32	26	29.0	0.86	6.6	M
2020-12-07	34	27	30.5	1.03	1.0	44
2020-12-08	36	32	34.0	0.86	0.0	44

2020-12-09	34	29	31.5	0.00	0.0	44
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Sum			-	13.84	31.9	
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24hr observations taken 7am daily from Haines 40NW (border customs office)

Date	Max Temperature	Min Temperature	Avg Temperature	Precipitation	Snowfall	Snow Depth
2020-11-01	34	19	26.5	T	0.5	2
2020-11-02	22	12	17.0	1.40	14.0	16
2020-11-03	16	3	9.5	0.02	0.5	11
2020-11-04	16	3	9.5	0.20	4.0	15
2020-11-05	20	6	13.0	0.00	0.0	9
2020-11-06	19	2	10.5	0.00	0.0	9
2020-11-07	18	2	10.0	0.00	0.0	8
2020-11-08	23	4	13.5	0.00	0.0	8
2020-11-09	37	17	27.0	0.07	0.3	8
2020-11-10	37	19	28.0	0.00	0.0	8
2020-11-11	37	11	24.0	T	0.2	8
2020-11-12	27	18	22.5	0.23	4.5	12
2020-11-13	30	24	27.0	0.10	1.0	13
2020-11-14	30	24	27.0	T	T	13
2020-11-15	30	23	26.5	0.02	1.0	14
2020-11-16	27	21	24.0	0.00	0.0	14
2020-11-17	25	5	15.0	0.00	0.0	14
2020-11-18	25	4	14.5	0.00	0.0	14
2020-11-19	22	12	17.0	0.00	0.0	14
2020-11-20	19	9	14.0	0.00	0.0	14
2020-11-21	17	8	12.5	0.00	0.0	14
2020-11-22	22	16	19.0	0.47	7.0	21
2020-11-23	26	16	21.0	0.05	1.0	19
2020-11-24	29	22	25.5	0.92	12.4	31
2020-11-25	29	7	18.0	0.00	0.0	30
2020-11-26	29	7	18.0	0.28	2.5	32
2020-11-27	30	13	21.5	0.07	1.0	33

2020-11-28	30	15	22.5	0.17	2.5	35
2020-11-29	33	15	24.0	1.05	18.0	31
2020-11-30	33	21	27.0	T	T	30
Sum	792	378	-	5.05	70.4	-
Average	26.4	12.6	19.5	-	-	16.7
Normal	30.1	18.1	24.1	5.39	49.3	-